

This listing of claims will replace all prior versions, and listings, of claims in the application.

**LISTING OF CLAIMS:**

**CANCEL CLAIMS 1-27**

28. *(new)* A composition comprising a source of alkaline phosphatase (AP) that is suitable for preventing or reducing lipopolysaccharide (LPS)-induced toxicity at a mucosal surface when the AP is delivered to the mucosa of a body cavity, which composition optionally further comprises a pharmaceutically acceptable:  
(i) stabilizer, (ii) activator, (iii) carrier, (iv) permeator, (v) propellant, (vi) disinfectant, (vii) protectant, (viii) diluent, (ix) nutrient or (x) another excipient, that promotes AP delivery to said mucosa.
29. *(new)* The composition of claim 28 wherein the AP is a mammalian intestinal AP, a tissue non specific AP, a placental AP or a liver AP.
30. *(new)* The composition according to claim 28 wherein the AP is of human or bovine origin.
31. *(new)* The composition according to claim 28 wherein the source of AP is a purified AP, an AP-enriched food product or an AP-enriched nutraceutical suitable for oral ingestion and delivery of the AP to the mucosal lining of the gastrointestinal (GI) tract.
32. *(new)* The composition according to claim 31 wherein the food product is a plant, a vegetable or a fruit that is optionally genetically modified to comprise an enhanced level of AP.
33. *(new)* The composition according to claim 31 wherein the food product is a dairy product.
34. *(new)* The composition according to claim 33 wherein the dairy product is non-pasteurized or partially pasteurized milk or a milk fraction.
35. *(new)* The composition according to claim 34 wherein the milk fraction is the milk fat globule membrane fraction.
36. *(new)* The composition according to claim 28 wherein the source of AP is enterically coated for oral administration and delivery to the GI mucosa.

37. (new) An inhalation or spray device loaded with a composition according to claim 18 and a propellant and/or a nebulizer.
38. (new) A method for preventing or reducing LPS toxicity at a mucosal surface of a mammalian body cavity in a subject, comprising administering to the subject in need thereof the composition of claim 28.
39. (new) The method according to claim 38, wherein the prevention or reduction of LPS toxicity is for prophylaxis or treatment of an LPS-mediated or LPS-exacerbated disease or condition.
40. (new) The method according to claim 39, wherein the LPS-mediated or LPS-exacerbated disease or condition is an inflammatory bowel disease, sepsis or septic shock, systemic inflammatory response syndrome, meningococcemia, trauma or hemorrhagic shock, a burn injury, cardiovascular surgery, cardiopulmonary bypass surgery, liver surgery, a liver transplant, liver disease, pancreatitis, necrotizing enterocolitis, periodontal disease, pneumonia, cystic fibrosis, asthma, coronary heart disease, congestive heart failure, renal disease, hemolytic uremic syndrome, a condition requiring kidney dialysis, an autoimmune disease, cancer, Alzheimer's disease, rheumatoid arthritis, or systemic lupus erythematosus.
41. (new) The method according to claim 38 wherein the composition is administered orally.
42. (new) The method according to claim 38 wherein the mucosal surface is in the GI tract.
43. (new) The method according to claim 42 wherein the composition is administered for the prophylaxis or treatment of a GI tract inflammatory disease.
44. (new) The method according to claim 43, wherein the GI tract inflammatory disease is selected from the group consisting of: inflammatory bowel disease, Crohn's disease, colitis, ulcerative colitis, hepatobiliary disease, hepatitis B, hepatitis C, liver cirrhosis, liver fibrosis, bile duct inflammation, biliary obstruction, pancreatitis, peritonitis, periodontal disease, and enterocolitis/necrotizing enterocolitis.
45. (new) The method according to claim 42 wherein the GI tract is more sensitive to LPS as a result of enhanced mucosal permeability of LPS due to (i) decreased intestinal perfusion or (ii) intestinal ischemia.

46. (new) The method according to claim 45 wherein the decreased perfusion or ischemia is a result of cardiopulmonary bypass surgery, trauma or wounding, burns, cardiac surgery, congenital heart disease, congestive heart failure, coronary heart disease, or ischemic heart disease.
47. (new) The method according to claim 38 wherein the composition is administered topically to said mucosa.
48. (new) The method according to claim 47 wherein the composition is administered to nasal mucosa, oral mucosa, vagina mucosa, or rectal mucosa.
49. (new) The method according to claim 47 wherein the composition is administered for treating a local or systemic inflammatory disease.
50. (new) The method according to claim 47 wherein the subject has a disease or disorder selected from the group consisting of a nasal infection, an oral infection, a vaginal infection or vaginitis, a rectal infection, a urinary tract infection, a sexually transmitted disease, and periodontal disease.
51. (new) The method according to claim 38 wherein the composition is administered by inhalation.
52. (new) The method according to claim 51 wherein the body cavity is respiratory tract mucosa.
53. (new) The method according to claim 52 wherein the composition is administered for the prophylaxis or treatment of an inflammatory disease of the respiratory system.
54. (new) The method according to claim 47 wherein the subject has a disease selected from the group consisting of pneumonia, a lung infection, asthma, cystic fibrosis, bronchitis, and emphysema.